RADIATION CONTROL BOARD
Department of Environmental Quality
Multi Agency State Office Building
Conference Room 1015, 195 North 1950 West, Salt Lake City, Utah
3:00 – 5:00 P.M., July 13, 2010

TENTATIVE AGENDA

I. Recognition of Outgoing Board Members **(Board Information Item)**

II. Minutes **(Board Action Item)**
   a. Approval of the Minutes from the May 11, 2010 Board Meeting

III. Rules **(Board Action Item)**
   a. Final Approval of Rule Changes for R313-19-13, R313-19-30 and R313-21-22

IV. Radioactive Materials Licensing/Inspection
   No Items

V. X-Ray Registration/Inspection
   No Items

VI. Radioactive Waste Disposal **(Board Information Items)**
   a. Public Comments on Performance Assessment Rule
   b. Presentation to U.S. NRC on Board Waste Blending Position Statement
   c. Comments from HEAL Utah

VII. Uranium Mill Licensing and Inspection
   No Items

VIII. Other Division Issues
   a. Introduction of Division Director **(Board Information Item)**
   b. Introduction of New Board Members **(Board Information Item)**
   c. Election of Board Chairman and Vice Chairman **(Board Action Item)**
   d. Appointment of Executive Secretary **(Board Action Item)**
   e. Lean Six Sigma Evaluation **(Board Information Item)**
   f. Quarterly Division Activities Report **(Board Information Item)**

IX. Public Comment

X. **The Next Scheduled Board Meeting: August 10, 2010 (Tuesday)**, Multi Agency State Office Building, Conference Room 1015, 195 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M.

For those individuals needing special assistance in accordance with the Americans with Disabilities Act, please contact Brooke Baker at the Utah Department of Environmental Quality, at 195 North 1950 West, Salt Lake City, UT 84116, Office of Human Resources at (801) 536-4412, TDD (801) 536-4414, or by email at: bbaker@utah.gov.

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I. Recognition of Outgoing Board Members(Information Item)

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II. Minutes (Action Item)
a. approval of the minutes from the May 11, 2010 Board Meeting

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III. Rules (Action Item)
a. Final Approval of Rule Changes for R313-19-13, R313-19-30 and R313-21-22

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IV. Radioactive Materials Licensing / Inspection
No Items

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V. X-Ray Registration / Inspection
No Items

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VI. Radioactive Waste Disposal
(Board Information Item)
a. Public Comments on Performance assessment Rule
b. Presentation to U.S. NRC on Board Waste Blending Position Statement
c Comments from HEAL Utah

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VII. Other Division Issues
a. Introduction of Division Director (Information Item)
b. Introduction of New Board Members (Information Item)
c. Election of Board Chairman and Vice Chairman (Action Item)
d. Appointment of Executive Secretary (Action Item)
e. Lean Six Sigma Evaluation (Information Item)
f. Quarterly Division Activities Report (Information Item)

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IX Public Comment
X. Next Scheduled Board Meeting:
August 10, 2010. MASOB Conf Rm 1015, 195 N 1950 W SLC UT 3:00 - 5:00P.M.

I. Recognition of Outgoing Board Members (Board Information Item)

II Minutes (Board Action Item)

a. Approval of the Minutes from the May 11, 2010 Board Meeting

MINUTES

OF

THE UTAH RADIATION CONTROL BOARD

May 11, 2010

Department of Environmental Quality, DEQ Building #2

Conference Room 101

168 N 1950 W

Salt Lake City, Utah 84114-4850

BOARD MEMBERS PRESENT
Scott Bird
Dane L. Finerfrock, Executive Secretary

BOARD MEMBERS ATTENDING BY CONFERENCE CALL
Elizabeth Goryunova, M.S., Vice Chair
Patrick D. Cone
Frank D. DeRosso, MSPH, CIH
Colleen Johnson
Edd Johnson
Douglas S. Kimball, DMD
John W. Thomson, M.D.
David A. Tripp, Ph.D.

BOARD MEMBERS ABSENT/EXCUSED
Peter A. Jenkins, M.S., CHP, Chair
Christian K. Gardner
Joseph K. Miner, M.D., MSPH
Amanda Smith, DEQ Executive Director

DRC STAFF/OTHER DEQ MEMBERS PRESENT
Kevin Carney, DRC Staff
Craig Jones, DRC Staff
Yoli Necochea, DRC Staff
Tom Rushing, DRC Staff

PUBLIC
Attachment: Public Attendance List

GREETINGS/MEETING CALLED TO ORDER

Elizabeth Goryunova, Vice Chairwoman, called the Board meeting to order at 3:03 p.m. and welcomed the board members and the public. She indicated that if the public wished to address any items on the agenda, they should sign the public, sign-in sheet. Those desiring to comment would be given an opportunity to address their concerns during the comment period.

I. APPROVAL OF MINUTES (Board Action Item)

a. Approval of the Minutes from the April 13, 2010 Board Meeting

Elizabeth Goryunova, Vice Chairwoman, asked the board members for corrections to the minutes from April 13, 2010.

Edd Johnson said that he had two minor changes. He said on page 6, 2nd paragraph, 3rd sentence, please **change "sight" to "site."** He said on page 11, 2nd paragraph, 4th sentence to **change "arithmetic means" to "arithmetic mean."** He said that "arithmetic mean" is not a verb. Mr. Johnson complimented those working to put the minutes into a written format that the Board can utilize. He appreciated their hard work and effort, and their tackling of terminology that they were not familiar with.

David A. Tripp, Ph.D., said that he also had a couple of changes. He said on page 8, the 2nd paragraph, 3rd sentence, under "Public Comments" that the statement made by Craig Galli was unclear: "He said that board member, Dr. David A Tripp's statement was "right on the mark." **He asked that the sentence be changed to read: "He said that board member, Dr. David A Tripp's statement (about the importance of public comments) was "right on the mark."**

David A. Tripp, Ph.D., said on page 12, 3rd paragraph, 3rd line, that he had a criticism. He said in a formal report from the Division that colloquial language should not be used, such as "plug and chug." He asked that the language **"plug and chug" be changed to "calculate."**

Colleen Johnson said on page 11, 2nd paragraph, on the last line, **there is an extra "were," and she suggested that it be removed.**

Patrick D. Cone said that he had a comment. He did not feel that it was "our place"—he felt that it was not appropriate to edit what people actually say.

MOTION MADE BY PATRICK D. CONE TO ADOPT THE MINUTES OF APRIL 13, 2010 AS AMENDED

MOTION SECONDED BY DAVID A. TRIPP, PH.D.

VOTE: MOTION CARRIED AND PASSED UNANIMOUSLY

II. RULES No Items

III. RADIOACTIVE MATERIALS LICENSING/INSPECTION No Items

IV. X-RAY REGISTRATION/INSPECTION

a. Certification of Individuals as "Mammography Imaging Medical Physicists"

Craig Jones, DRC Section Manager, referred the board members to a memorandum in their board packet dated May 5 2010. The memo read that eight people had submitted applications for recertification as "Mammography Imaging Medical Physicists." In addition, a ninth person was applying for the first time. Mr. Jones said that all of the applicants had supplied the Division with appropriate documentation to show that they have met the qualifications for certification or for continuing qualification for their recertification.

Recommendation by Executive Secretary:
The Executive Secretary recommended the approval of the nine applicants for certification or recertification as Mammography Imaging Medical Physicists.

JOHN W. THOMSON, M.D. MOVED TO ACCEPT THE EXECUTIVE SECRETARIES RECOMMENDATION AND APPROVE THE NINE APPLICANTS FOR CERTIFICATION OR FOR RECERTIFICATION.

DAVID A. TRIPP, PH.D. SECONDED

VOTE: MOTION CARRIED AND PASSED UNANIMOUSLY

V. Radioactive Waste Disposal No Items

VI. URANIUM MILL LICENSING AND INSPECTION No Items

VII. OTHER DIVISION ISSUES No Items

VIII. PUBLIC COMMENT

Elizabeth Goryunova, M.S., Vice Chairwoman, asked the public in attendance, if anyone from the public wished to address the Board. No one from the public wished to address the Board.

PATRICK D. CONE MOTIONED TO ADJOURN.

MOTION SECONDED BY JOHN W. THOMSON, M.D.

VOTE: MOTION CARRIED AND PASSED UNANIMOUSLY

IX. The Next Scheduled Board Meeting: June 8, 2010 (Tuesday), Multi-Agency State Office Building, Utah Department of Environmental Quality (DEQ), Conference Room 1015 – DEQ Board Room, 195 North 1950 West, Salt Lake City, Utah 3:00 – 5:00 P.M. THE BOARD MEETING ADJOURNED AT 3:22 P.M.

III. Rules (Board Action Item)

a. Final approval of Rule Changes for R313-19-13, R313-19-30 and R313-21-22.

UTAH RADIATION CONTROL RULES

BOARD ACTION ITEM

Final Rulemaking for Proposed Changes to R313-19-13 "Exemptions", R313-19-30 "Reciprocal Recognition of Licenses," and R313-21-22 "General Licenses – Radioactive Material Other Than Source Material."

During the Radiation Control Board meeting on April 13, 2010, the Board voted to approve the proposed changes to R313-19-13, R313-19-30, and R313-21-22, and directed Division staff to file the proposed rule changes with the Division of Administrative Rules and to give notice of a 30-day public comment period. The proposed rule changes were filed with the Division of Administrative Rules on the afternoon of April 13, 2010, and the proposed rule changes were published in the State Bulletin on May 1, 2010, with the public comment period ending at 5:00 pm on May 31, 2010. An announcement of the 30-day public comment period was published in the Salt Lake Tribune and Deseret News on May 4, 2010.

No comments were received from the public during the 30-day comment period. However, the Division received three comments from the U.S. Nuclear Regulatory Commission. The comments included adding a paragraph to R313-19-13(2)(a), and adding and deleting some rules in R313-22-75. To help facilitate the rulemaking process, these comments will be addressed in a separate rule making action at the next Board meeting.

Recommendation

The Executive Secretary recommends that the Board approve the proposed changes to the Utah Radiation Control Rules, direct staff to file the finalized rules with the Division of Administrative Rules, and to set an effective date of July 14, 2010.

VI. Radioactive Waste Disposal (Board Information Item)
   a. Public Comments on Performance Assessment Rule
   b. Presentation to U.S. NRC on Board Waste Blending Position Statement.
   c. Comments from HEAL Utah

VI. Radioactive Waste Disposal (Board Information Item)
a. Public Comments on Performance Assessment Rule

Issues for consideration related to proposed rule R313-25-8. Technical Analyses

The following are a number of topics we at HEAL Utah believe are important factors in considering the proposed rule on performance assessments. We fundamentally agree with the premise that either the Executive Secretary or the Board should be able to require a performance assessment prior to acceptance of a waste stream by a licensee. We offer these comments in order to stimulate additional thinking and discussion about performance assessments and how the rule could be improved, or additional policies the Board may wish to adopt when considering performance assessments. We will be prepared to offer specific rule and policy language as rule development proceeds.

The gulf oil disaster offers a poignant backdrop for the Board's consideration of the proposed rule. Reportedly, the probabilistic performance assessment conducted for BP's offshore oil drilling said there was a **zero percent probability** that a disaster of the magnitude we're seeing unfold would happen. This disaster reminds us how important it is to evaluate not just the most likely outcomes, but the worst case outcomes. Many of the discussion points below are aimed at providing the Executive Secretary and the Board a framework for discerning and evaluating worst case outcomes. Many comments also aim to increase the transparency, flexibility, and independent verifiability of performance assessments.

I also hope that the Board and the Executive Secretary will consider comments that were submitted to the State related to depleted uranium, especially those of Dr. Steve Nelson and Dr. Peter Burns. Both of these scientists provided recommendations relative to performance assessments in the context of depleted uranium. For instance, both recommended that a peer review panel be able to evaluate the assumptions of a performance assessment.

Finally, I have attached a research paper in which proponents and critics discuss the merits and deficiencies, respectively, of performance assessments. From the introduction:

> *Two "skeptics" acknowledge the utility of PA [Performance Assessment] in organizing the scientific investigations that are necessary for confident siting and licensing of a repository;* ***however, they maintain that the PA process, at least as it is currently implemented, is an essentially unscientific process with shortcomings that may provide results of limited use in evaluating actual effects on public health and safety.*** *Conceptual uncertainties in a PA analysis* ***can be so great that results can be confidently applied only over short time ranges . . ."*** **(emphasis added)**

The proponents go on to detail the six steps that a performance assessment should follow in order to yield ideal results. The last part of the article is a question-and-answer dialogue between the critics and proponents of performance assessments. I

hope you find the article useful as you contemplate the next steps in developing this proposed rule.

Sincerely,

Christopher Thomas
Policy Director
HEAL Utah

Submitted: July 1, 2010

Topics for Discussion

- Performance modeling is an exercise that can, when used appropriately, provide useful input to help regulatory decision makers evaluate whether a nuclear waste disposal site can adequately protect the public from various kinds of nuclear waste. However, the results of any performance assessment must be evaluated in light of how closely the model simulates reality.

- The Board and / or Executive Secretary should have explicit authority to take a number of actions with respect to a submitted performance assessment: accept it, reject it, request additional runs with suggested parameters or modified model components, or request additional independent analysis from a hired technical consultant or a peer review panel.

- A licensee should be required to make available a public version of its model, maximizing the capability for members of the public to understand what assumptions were made and to run the model using modified assumptions. The GoldSim package that EnergySolutions has chosen to perform its depleted uranium performance assessment (and that the Nuclear Regulatory Commission recently used) has the capability to output a file that can be publicly and freely distributed. EnergySolutions and its contractor, Neptune, have the option to make some portions of that publicly-distributed file modifiable. To the extent that EnergySolutions and its contractor Neptune can make the performance assessment transparent, publicly available, and independently verifiable, they should.

- Any performance analysis submitted to the state should contain a description of the sources of uncertainty in the model. Uncertainty can arise in many forms: in the simplifying assumptions made in different components of the model; in the range of the many climatic factors that can influence whether the site succeeds or fails (like precipitation, groundwater flow, aridity); disruptive events that can lead to catastrophic failure of the site; and long timeframes.

- The performance assessment should present not only the likelihood of whether the performance objectives will be met, but if performance objectives are not met, the assessment should also explain by how much the standard would be exceeded. In other words, in a "worst case scenario" event, what is the magnitude of the expected dose to a member of the public and an inadvertent intruder? The Executive Secretary and the Board should be able to factor a maximum exposure event into its decision of whether or not to allow a particular waste stream to be disposed at a given site.

- We doubt that modeling of this kind is appropriate for waste streams that remain dangerous for longer than 1,000 years when disposed at near-surface facilities. For instance, climatic factors that today make a near-surface site suitable for nuclear waste can be expected to radically change over time, and might make the same site unsuitable in the future. Unless the model allows for dramatic changes in climate over time, the results of the modeling exercise will have limited value. For a site like EnergySolutions, taking into account drastic changes in climate would entail, for instance, running scenarios in which the amount of annual precipitation is much larger (or smaller) than it is today; in which storm events are much larger (or smaller) than we see today; and groundwater flows much faster (or slower) than we see today. We believe modeling over timeframes longer than 1,000 years may be more appropriate when applied to deep geologic disposal, given that deep geologic disposal systems, buried thousands of feet below the Earth's surface, are less susceptible to climatic variation.

- Performance assessments submitted by an applicant or licensee should be evaluated against not only the standards laid out in R313-25, but also other sections of Utah law and rules that pertain to nuclear waste.

- The recent depleted uranium analysis conducted by the Nuclear Regulatory Commission staff received criticism from some stakeholders for not adequately calculating the radiological dose to organs. The NRC staff chose a method that used organ exposures only insofar as such organ exposures resulted in a whole-body dose. We do not believe that is the appropriate way to enforce the requirement that: "Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants or animals shall not result in an annual dose exceeding an equivalent of 0.25 mSv (0.025 rem) to the whole body, 0.75 mSv (0.075 rem) to the thyroid, and 0.25 mSv (0.025 rem) *to any other organ of any member of the public.*" **R313-25-19. Protection of the General Population from Releases of Radioactivity.**

- Any performance assessment submitted by an applicant or licensee must evaluate a scenario in which an inadvertent intruder occupies the site or comes into direct contact with the waste. This is an explicit requirement within R313-25, but EnergySolutions has been allowed to exclude certain intruder scenarios in the past. We believe modeling an inadvertent intruder who occupies the site or

comes into direct contact with the waste is a useful approximation for a "worst case scenario" event that could occur and provides useful input to decision-makers in that context.

- Historically, NRC has evaluated the intruder scenario in terms of achieving no more than a 500 millirem per year dose. If this dose is chosen as the standard for this scenario, then this threshold should apply to the whole body, the thyroid, and any other organ of an inadvertent intruder, similar to the protection of the general population. A smaller dose limit of 100 millirem could also be evaluated.

- If disruptive events can be foreseen that lead to catastrophic failure of a site during a time of hazard (ie, in which the site contains waste that is still radioactively potent enough to cause unacceptable doses to an inadvertent intruder who comes into contact with the waste), that should be grounds to reject a given waste stream.

- Unfortunately, performance assessment software like GoldSim can be "optimized" or run backwards to set parameters to achieve a certain result. I'm not sure the State can prevent a licensee from using a performance assessment model in this way, but the Division of Radiation Control and the Board may want to consider a different arrangement, in which it is the State who directs the performance assessment and not the licensee. If the State is conducting the modeling, the State can warrant that the modeling software was not used to achieve a desired result.

Dane Finerfrock - Prospective Rule Regarding Performance Assessments

From: Rachel White <rachelwx@gmail.com>
To: <DFinerfrock@utah.gov>
Date: 5/5/2010 10:45 AM
Subject: Prospective Rule Regarding Performance Assessments

Dear Mr. Finefrock,

I just wanted to send a message of support for the prospective rule requiring site-specific performance assessments in some situations. The rule seems like it will be a valuable addition to the regulations, and should close up a gaps that has allowed new types of hazardous radioactive material to be brought into the State of Utah with a minimum of oversight to protect the health and safety of Utah citizens and the environment.
Thank you for your work on this.
Sincerely,
Rachel White
625 West 500 North
Salt Lake City, Utah 84116

Dane Finerfrock - Proposed Amendment to R313-25-8

From: "David E Bernhardt" <daveb077@msn.com>
To: "Dane Finerfrock" <dfinerfrock@utah.gov>
Date: 5/10/2010 4:40 PM
Subject: Proposed Amendment to R313-25-8

I interpret that the two items of the "proposed rule" will provide somewhat of a preface to existing rule R313-25-8 clarifying the potential need for "performance assessments." I support this and believe it adds clarity to the existing rule.
Dave Bernhardt, CHP

From: Christopher Thomas <christopher@healutah.org>
To: Dane Finerfrock <dfinerfrock@utah.gov>
Date: 6/10/2010 3:19 PM
Subject: Re: Request for extension of comment period re: R313-25-8

Dane,

I appreciate your prompt attention to my letter, and thank you for the comment extension.

Christopher Thomas
Policy Director
HEAL Utah
801-355-5055
www.healutah.org

On Jun 10, 2010, at 2:38 PM, Dane Finerfrock wrote:

> Christopher:
>
> I haven't been able to contact Peter Jenkins about your request for an extension of the comment period. The next Radiation Control Board meeting is July 13 and I think this issue should be on the Agenda. Therefore, I will extend the comment period until July 1, 2010.
>
> Sincerely,
>
> Dane
>
>
>
> >>> Christopher Thomas <christopher@healutah.org> 6/10/2010 10:57 AM >>>
>
> Peter and Dane,
>
> Please see the attached comment period extension request for the advanced comment on R313-25-8. Please feel free to contact me with any questions.
>
> I am copying the two public representatives on the Board.
> Thank you,
>
>
> Christopher Thomas
> Policy Director
> HEAL Utah
> 801-355-5055
> www.healutah.org
>

Dane Finerfrock - Comment on new site-assessment requirement for unique waste streams

From: <norman1122@att.net>
To: <DFinerfrock@utah.gov>
Date: 6/10/2010 8:56 AM
Subject: Comment on new site-assessment requirement for unique waste streams
CC: <norman1122@att.net>

To whom it may concern:

I am a citizen of Utah. I have no ties to the nuclear industry and no ties to local, state, or federal government. As such, I feel that we should do everything in our power to protect the citizens and the environment from health hazards. Nuclear waste is a health hazard and should be managed carefully. The following should be done with any nuclear waste being stored in the state of Utah:

1. It should be stored in containers which allow it to be identified and managed hundreds of years later.
2. It should be stored in facilities which allow individual lots to be tracked and retrieved, in the event that the waste can be reprocessed or sent to another facility in the future.
3. It should not be buried in dirt, which allows any further recovery difficult, but should be stored in facilities which have cement floors and protective roofs, to protect storage containers from water, and protect the nuclear waste from re-entering the ground and water supplies.
4. It should not be down-blended and diluted for classification purposes. Such down-blending makes any future recovery and shipment extremely difficult. Downblending also makes containment problematic, as the volume of waste will go up and the probability of container breach, through rust, erosion, natural disaster, etc., will go up also.

With this in mind, if rule R313-25-8, and a site-specific performance assessment makes the above guidelines more achievable, then I am in favor of this rule.

Sincerely,

--Norman Angerhofer
South Jordan, Utah 84095
801-253-2524

Dane Finerfrock - (no subject)

From: <Sarnen@aol.com>
To: <DFinerfrock@utah.gov>
Date: 6/7/2010 4:00 PM
Subject: (no subject)

Dear Sir,

It is very nice to know that you are monitoring such things. The suggestion in the last paragraph of your statement, as I had listed below, is critical and will hopefully be in plain language for those who are involved in, and subject to, such parameters. I made one slight suggestion which is highlighted below: that the proposed rule should clarify that the performance assessment must be done before any action takes place by a licensee.

With regards,

Lynn Wade

*The proposed rule will also clarify that a licensee must conduct a performance assessment **before** the activity occurs or continues to be exercised in situations if impacts from those activities have not been clearly considered through existing regulation or established guidance.*

Comment Regarding Site Assessment By the Radiation Control Board on New Waste Streams.

By: Randy Horiuchi

Salt Lake County Councilman

Government Relations Consultant Studsvik Inc.

June 9, 2010

I express appreciation to the Radiation Control Board for taking comment on the critical issue of conducting performance assessments on new waste streams. We understand the duress faced by the Board when an aggressive waste company liker Energy Solutions seems to be offering a "waste a day" approach to attracting material to be deposited at Clive. The parade of foreign waste, depleted uranium and now, down blended waste has presented the Board with an exhausting ordeal while regulating the Clive facility. It is down blending that I would address specifically since the Board has already dealt with foreign waste and depleted uranium.

Down blended waste presents Utah regulators with particularly thorny consequences. Blended waste, if allowed at Clive will condemn the facility of accepting at least 50 % of B and C waste generated in the country. That is a difficult burden to bear since both the Governor and Legislature passed and signed legislation to prohibit the waste from coming to Utah. Simple economics justifies this concern. Down blending B and C waste down to class A waste is much cheaper to dispose of then already classified B and C waste. The factor approaches ten to one. Further, acceptance of B and C blended resins will alone increase the historical acceptance of curies taken at the Clive site by 744-800

percent. This is according to Energy Solutions own estimates as presented to the NRC at a conference in December of 2009.

Rationale for conducting site assessments for unique waste streams has two considerations.

First, prior to any site assessment, the unique waste stream being considered must not be allowed to be land filled at Clive until the site assessment has been successfully completed and it has been determined by the Board to be safe to take. This will prohibit the kind of "accident" that barrels of waste are sent to Clive and held in transit with no apparent safe haven. Also, no waste should be shipped here until the NRC establishes directed rules or regulation strategy to deal with the unique waste.

Secondly, the consideration of accepting such waste must have an accompanying assessment of the impact to the waste stream to the original specifications of the original EIS of the Clive site. Particular items of discussion to be included should be 1) increase of curies, 2) safety in handling, 3) adequate testing processes on the front end. If it is determined that the original Clive site EIS did not anticipate the intensity of curies introduced in the unique waste stream, it should not be allowed for deposit. Or if major modifications in the site are needed, the Board can delineate what changes in construction and other factors should be contemplated.

The task that the Board has in regulating Energy Solutions is a daunting task. Care must be taken when new waste streams are being considered. The consequences of a failed public policy are grave. The consequences to the public you serve is even greater. We appreciate your service to the state.

June 11, 2010

Mr. Dane L. Finerfrock, Director
Division of Radiation Control
State of Utah
P.O. Box 144850
Salt Lake City, UT 84114-4850

SUBJECT: PROPOSED RULE FOR SITE-SPECIFIC PERFORMANCE ASSESSMENT

Dear Mr. Finerfrock:

I would like to take this opportunity to comment to the Utah Radiation Control Board (the Board) for its consideration of whether to propose a rule that would require a site-specific performance assessment in some situations and that would provide direction about how performance assessments should be conducted. I would first like to make clear that this letter is not a compatibility review. The U.S. Nuclear Regulatory Commission (NRC) will review any proposed and final rule from the State of Utah for compatibility with Federal Regulations as established in the Office of Federal and State Materials and Environmental Programs Procedure SA-200.

As the Board is aware, the NRC is currently developing a technical basis for a proposed regulation at 10 CFR Part 61 to specify a site-specific performance assessment for the disposal of unique waste streams, including significant quantities of depleted uranium. This process is expected to clarify criteria and guidance for the safe disposal of low-level radioactive waste. The NRC anticipates developing proposed rule language in September 2011, and a final rule after receiving public comments in September 2012. Once a final rule is implemented, the State of Utah will have three years to develop conforming regulations.

During our public meetings last September, both in Rockville, Maryland and Salt Lake City, Utah, we discussed with the participants how other unique waste streams should be captured by the rulemaking effort. Participants suggested that unique waste should not be defined by the rule and to utilize the performance assessment to assess whether additional analyses would be required to accept a new waste stream into a facility (see http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/key-messages.html). This is similar in concept to the approach the Board is considering.

In April, the NRC staff provided the NRC Commission with an analysis of the issues related to the blending of low-level radioactive waste of higher radionuclide concentration with other similar low-level radioactive waste of lower radionuclide concentration to form a final homogeneous mixture (SECY-10-0043). The NRC staff's recommendation to the NRC Commission is to revise blending positions to be risk-informed and performance-based through both guidance and rulemaking. The rulemaking revisions would be completed as part of the unique waste rulemaking and would be primarily focused on requirements for evaluating intruder protection on a site-specific basis as part of the performance assessment.

Depending upon the outcome of the NRC's rulemaking, revisions to this potential Utah rule may be required to ensure continued compatibility with Federal regulations. The Board may want to consider if the regulatory change currently proposed would be exercised prior to the publication of the NRC final rule and when the State of Utah may need to modify its existing regulations to ensure compatibility.

In addition to the consideration of process and need, I would like to take this opportunity to comment on a couple of the conditions under consideration.

- Condition 2.a. The Board may want to consider a screening approach before requiring a full performance assessment as could be interpreted from this section. For a number of radionuclides that are not specifically listed in the classification system, their inventories are small and simple bounding assessments can be done to evaluate their risk.

- Condition 2.c. It currently reads "demonstrate that the facility is at least as likely as not to be able to meet performance objectives." This should be revised to be consistent with other similar State regulations. While we acknowledge that the performance assessment must address the uncertainties, the regulator should still have reasonable assurance, possibly, through multiple lines of reasoning, and not just the numerical results of the performance assessment, that the performance objectives will be met during the compliance period.

If you have any questions regarding these comments, please contact me at 301-415-6673, or by email at Larry.Camper@nrc.gov.

Sincerely,

/RA/

Larry W. Camper, Director
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

WASTE CONTROL
SPECIALISTS LLC

June 25, 2010

Mr. Dane Finerfrock
Division of Radiation Control
P.O. Box 144850
Salt Lake City, Utah 84114-4850

Reference: (1) Texas Radioactive Material License No. R04100, Amendment 02

Subject: Comments Pertaining to Utah Radiation Control Board's Request for Advance Comments on Prospective Rule Regarding Performance Assessments

Dear Mr. Finerfrock:

Waste Control Specialists LLC (WCS) has reviewed the *Request for Advance Comments on Prospective Rule Regarding Performance Assessments* issued by the Utah Radiation Control Board in May 2010. WCS recently received a radioactive material license (Reference 1) from the Texas Commission on Environmental Quality (TCEQ) to construct and operate a facility designed to dispose of Class A, B, and C low-level radioactive waste (LLRW)—the first such facility to be developed under the LLRW Policy Act of 1980 as amended in 1985. The experience we acquired during the licensing review process may be helpful to the Utah Radiation Control Board and therefore we offer the following comments.

New and unique waste streams, such as large quantities of depleted uranium (DU) and "blended" Class A LLRW (i.e., mixtures of Class B and C LLRW with sufficient quantities of Class A LLRW such that the resulting mixture is at the upper bounds of the Class A limits) have challenged regulators not only in Utah, but also in the nation at large. Accordingly, the U.S. Nuclear Regulatory Commission (NRC) is now deliberating on the best approach to ensure that NRC and Agreement State licensees meet the performance objectives specified in Title 10 of the Code of Federal Regulations (CFR), Part 61 (10 CFR 61). These deliberations are proceeding in part because the NRC did not analyze the impact from DU or blended waste disposal during the rulemaking (and supporting Environmental Impact Statement) that promulgated 10 CFR 61.

As stated in 10 CFR 61.40 and Utah Administrative Code (UAC), Section R313-25-18, LLRW disposal facilities must be sited, designed, operated, closed, and controlled after closure so that *reasonable assurance* exists that exposures to humans are within the limits established in the specified performance objectives. To provide the regulated community with guidance, the NRC published NUREG-1573, *A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities*. This guidance directs licensees to evaluate the hazards of radioactive waste for a period of performance of 10,000 years—a time frame that is generally sufficient to capture the peak doses from mobile radionuclides.

Corporate
5430 LBJ Freeway, Ste. 1700
Three Lincoln Centre
Dallas, TX 75240
Ph. 972.715.9800
Fx. 972.448.1419

Facility
P.O. Box 1129
Andrews, TX 79714
Ph. 888.789.2783
Fx. 575.394.3427

However, this peak dose evaluation is not sufficient for the disposal of DU and blended Class A LLRW. Peak dose for DU disposal is expected to occur over a much longer time period than 10,000 years—in excess of 100,000 years. In terms of blended LLRW, NRC staff recently indicated that LLRW blended to the upper bounds of the Class A limits poses unacceptably high doses. It has been suggested that additional controls and qualification testing previously applicable only to Class B and C LLRW would be required to meet 10 CFR 61.40 for blended Class A LLRW.

To ensure consistency with NRC rules and those specified in UAC Section R313-25-18, we suggest that the Utah Radiation Control Board's proposed *Technical Analyses* rule should require a performance assessment that accounts for the time period during which radioactive waste poses its greatest hazards to public health.

The proposed rule specifies that a "site-specific performance assessment shall . . . demonstrate that the facility is at least as likely as not to be able to meet performance objectives." Both UAC Section R313-25-18 and 10 CFR 61.40 specify that the facility must demonstrate with *reasonable assurance* (not "at least as likely as not") that the performance objectives be met. Therefore, we suggest that Section R313-25-8.2(c) should be revised accordingly.

WCS appreciates that opportunity to share our views with the Utah Radiation Control Board on this important initiative. Should you have any questions please contact me at 575-394-4300 or by email at skirk@valhi.net.

Sincerely,

J. Scott Kirk, CHP
Vice President, Licensing, Corporate Compliance & Radiation Safety Officer

cc: William P. Dornsife, WCS

VI. Radioactive Waste Disposal (Board Information Item)

b. Presentation to U.S. NRC on Board Waste Blending Position Statement.

Presentation to the U.S. Nuclear Regulatory Commission on the Board's Radioactive Waste Blending Position Statement

BOARD INFORMATION ITEM

On June 17, 2010, the Nuclear Regulatory Commission held a public Commission meeting on blending of low level radioactive waste. The Commission was interested in hearing views from Utah and other stakeholders on this issue. The agenda for the meeting and the presentation given by Craig Jones are attached. This Commission meeting was webcast live and it may be viewed at the following URL: http://video.nrc.gov/Player.aspx?Event=476.

SCHEDULING NOTE

Title: **BRIEFING ON BLENDING (Public Meeting)**

Scheduled: **Thursday, June 17, 2010**
9:00 am

Duration: Approx. 3 hours

Location: Commissioners' Conference Room, 1st fl OWFN

Participants: **Presentation**

NRC Staff **30 mins.***
Mike Weber, Deputy Executive Director for Materials, Waste, Research, State, Tribal, and Compliance Programs
Larry Camper, Director, Division of Waste Management and Environmental Protection, FSME
James Kennedy, Senior Project Manager, Low Level Waste Branch, FSME
Christianne Ridge, Senior Systems Performance Analyst, Performance Assessment Branch, FSME

Topic:
- Blending (SECY-10-0043, 4/7/10, *Blending of Low Level Radioactive Waste.*)

Commission Q & A **50 mins.**

Break 5 **mins.**

State Representatives **20 mins.***
Craig Jones, Program Manager, Division of Radiation Control, Utah Department of Environmental Quality 5 mins.*
Susan Jablonski, Director, Radioactive Materials Division, Texas Commission on Environmental Quality 5 mins.*
Edward Nanney, Director, Division of Radiological Health, State of Tennessee 5 mins.*
Dave Allard, Director, Bureau of Radiation Protection, Pennsylvania Department of Environmental Protection 5 mins.*

Commission Q & A **25 mins.**

Stakeholders **25 mins.***
Tom Magette, Senior Vice President, Nuclear Regulatory Strategy, Energy*Solutions* 5 mins.*
William Dornsife, Executive Vice President, Licensing and Regulatory Affairs, Waste Control Specialists 5 mins.*

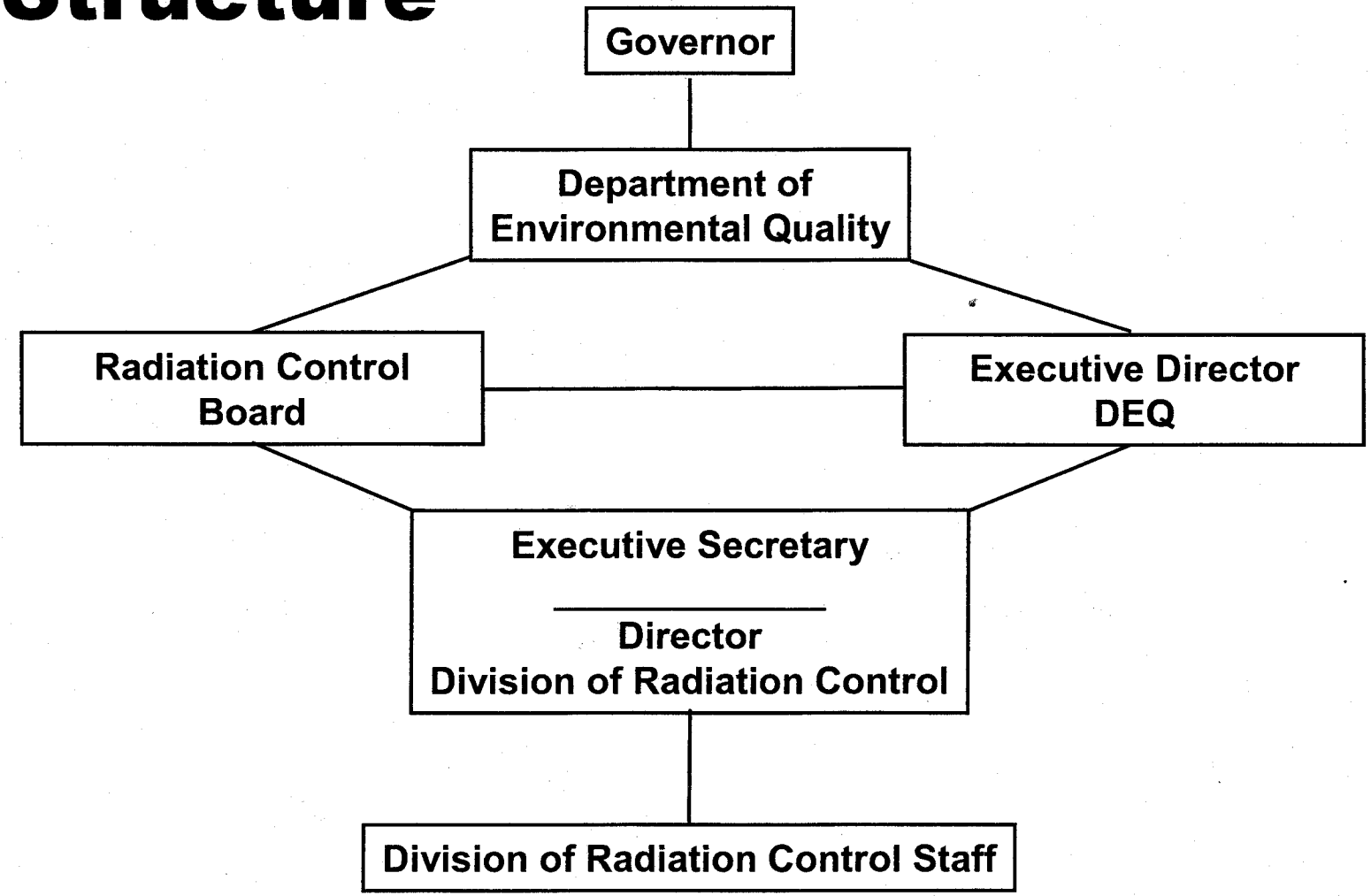
Joseph DiCamillo, General Counsel, Studsvik	5 mins.*
Diane D'Arrigo, Radioactive Waste Project Director Nuclear Information and Research Service	5 mins.*
Ralph Andersen, Senior Director, Radiation Safety & Environmental Protection, Nuclear Energy Institute	5 mins.*
Commission Q & A	**25 mins.**
Discussion – Wrap-up	**5 mins.**

The Utah Perspective on Blending Waste

June 17, 2010

Craig W. Jones, Program Manager
Utah Division of Radiation Control

Structure


Governor
Department of Environmental Quality
Radiation Control Board
Executive Director DEQ
Executive Secretary
Director
Division of Radiation Control
Division of Radiation Control Staff

Utah Radiation Control Board Position Statement

- The Utah Radiation Control Board (Board) recognizes that down-blended radioactive waste does not pose any unique health and safety issues to the public that are not observed in other classes of low-level radioactive waste.

Utah Radiation Control Board Position Statement

- The Board is also aware that down blending may appear to some persons as a process to circumvent Utah law, which prohibits any entity in Utah from accepting Class B or Class C low-level radioactive waste for commercial storage, treatment or disposal.

Utah Radiation Control Board Specific Position Statements

1. The Board is opposed to waste blending when the intent is to alter the waste classification for the purposes of disposal site access.
2. Dilution of radioactive wastes with uncontaminated materials should be explicitly prohibited.

Utah Radiation Control Board
Specific Position Statements

3. Current guidance documents dealing with concentration averaging and mixing should be updated to address the current understanding of the possible down-blending issues. Important matters dealing with waste blending, such as prohibition of certain practices, currently in guidance should be put into regulation.

VI. Radioactive Waste Disposal (Board Information Item)

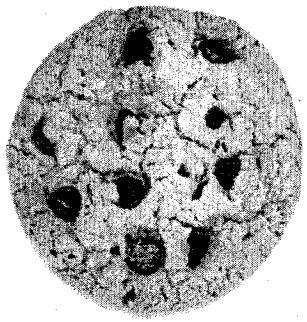
c. Comments from HEAL Utah

Will it Blend?

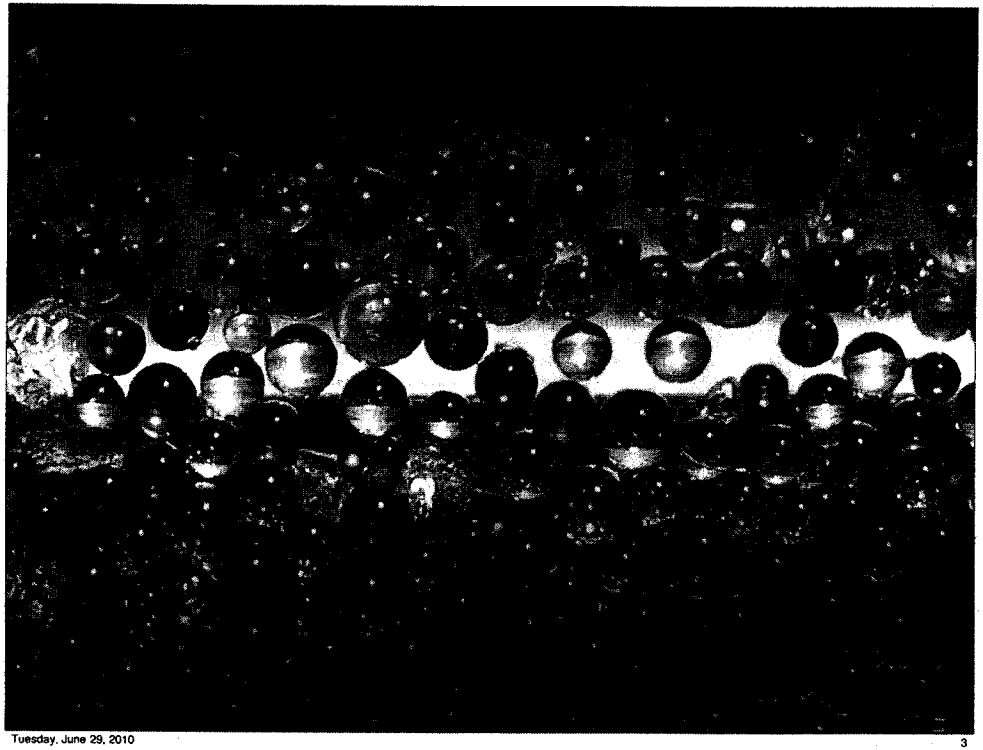
DRAFT

Technical, Practical, & Policy Considerations on Intentional Mixing to Reduce Waste Class

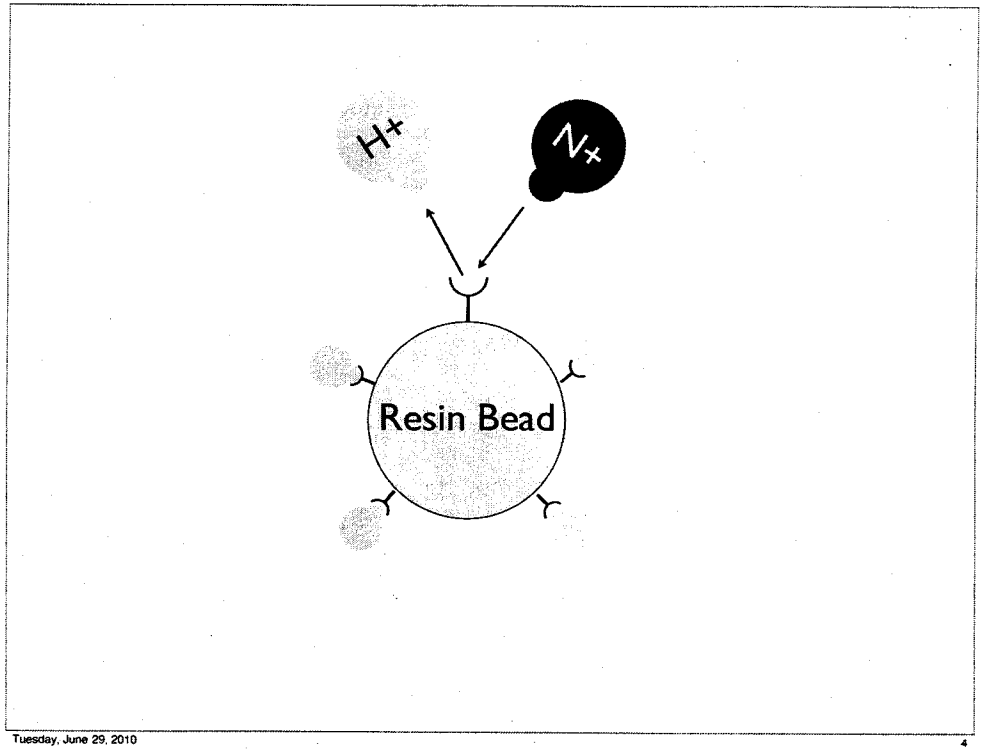
HEAL Utah July 2010



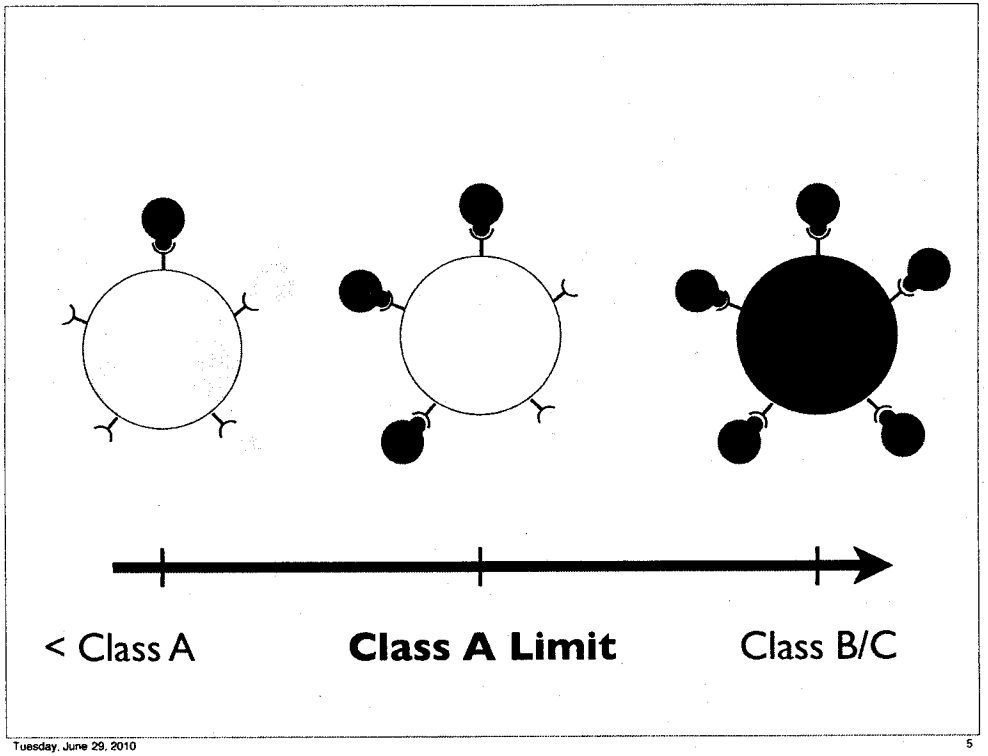
EnergySolutions invited us to view blended mixed waste as a cookie; the NRC Chairman made an analogy to tea. Both implied that waste which had been downblended is indistinguishable from waste which had not been downblended. As I've learned more about downblending, I've heard some things that throw both analogies into doubt



In the context of the current discussion, we have to remember that we're talking about the mixing of resin beads that come from nuclear power plants.

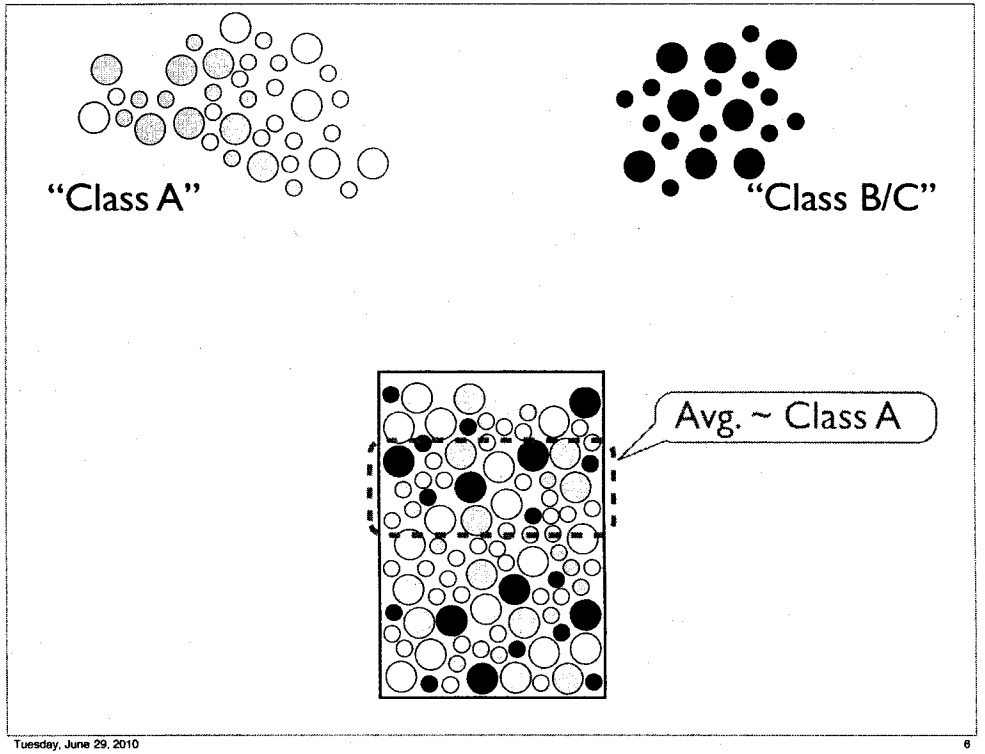


Ion exchange resins work by presenting an ion at receptor sites that is exchanged with the radionuclide that the nuclear power plant operators want to remove from the water system or from a liquid waste stream



Tuesday, June 29, 2010 5

As the receptor sites are filled with the radionuclide of interest, the bead eventually becomes spent. In this example, the dark gold resin bead is very lightly contaminated with the radionuclide of interest. As the bead acquires extra radionuclides, it becomes faded yellow, and then eventually purple, as all the receptor sites are filled.



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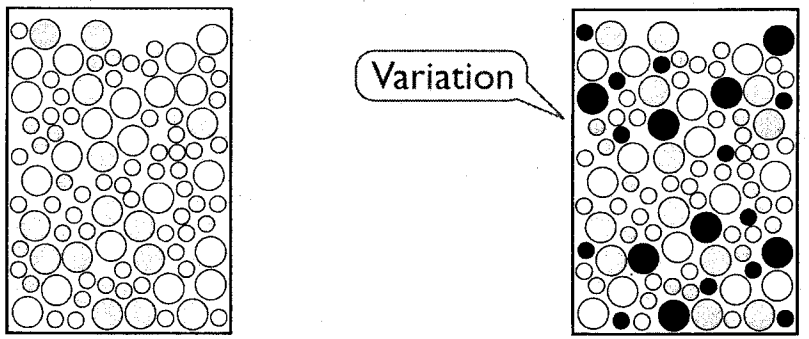
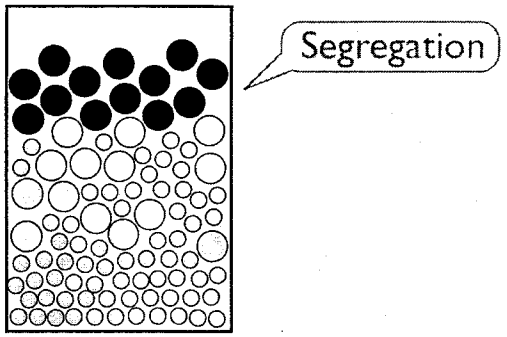
EnergySolutions wants to mix resins that otherwise would be categorized as Class B or C with lightly contaminated resins that by themselves would be considered Class A. After initial mixing, taking the average radioactivity over a given volume would yield a concentration of radioactivity at or near the Class A limit.

Not Intentionally Mixed

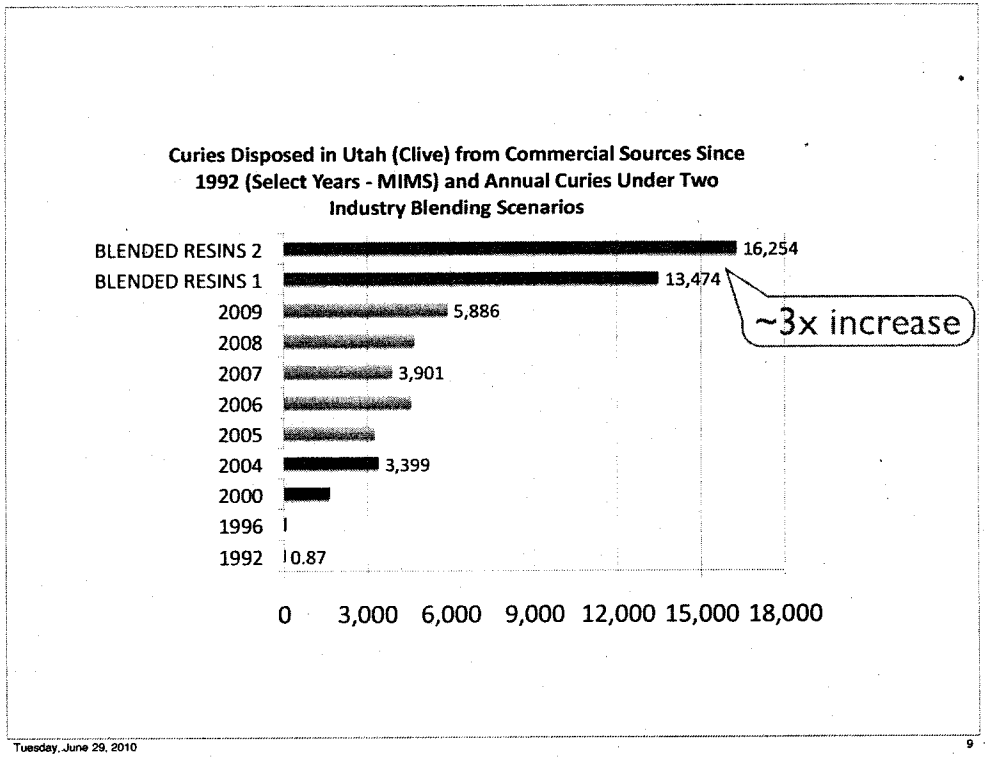
Intentionally Mixed



Some have suggested that it is impossible to distinguish between waste that was intentionally mixed and waste that was not intentionally mixed. When we met with the NRC Chairman recently, I suggested that it would be easy to tell the difference because the intentionally mixed one would contain a higher number of hotter beads than the other. He said he had not considered the problem this way and would get back to me.



NRC staff acknowledged that resins don't stay mixed -- they segregate out based on size and density. Our concern is if a band of hotter beads occurs, creating a "hot spot." NRC has acknowledged the possibility of "hot spots" but I'm not aware of any technology that will stop segregation from happening.



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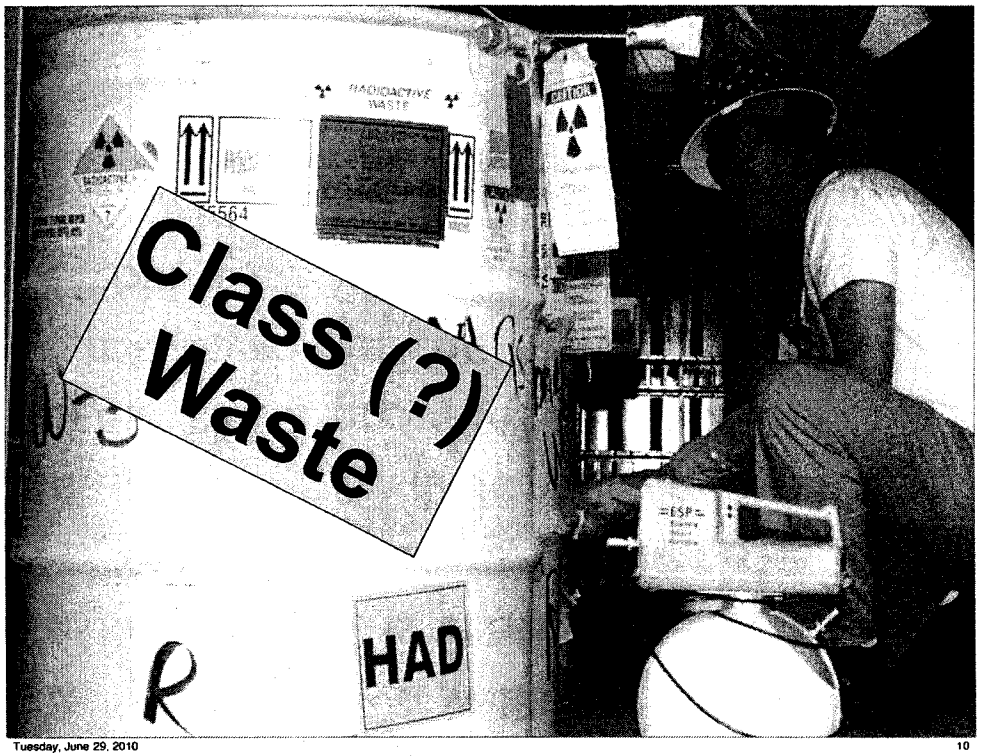
This analysis is based upon the EPRI blending paper, scenarios identified by EnergySolutions in previous presentations, and further analysis by Studsvik. We would have done our own analysis, but the EPRI paper is not in the public domain. Bottom line is that the radioactivity in the resins ALONE is about TRIPLE the radioactivity in all commercial sources that they receive today. This means more shipments, more chances of accidents, more severe consequences if there is an accident or a release.



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As you know, Utah law prohibits Class B and C waste from even being accepted in the state. However, if the NRC formalizes the interpretation that waste does not have a classification until it is disposed, we won't be able to legally stop B and C wastes from being accepted, because EnergySolutions could say--it doesn't have a classification until it's in the ground

19-3-103.7. Prohibition of certain radioactive wastes.

No entity may accept in the state or apply for a license to accept in the state for commercial storage, decay in storage, treatment, incineration, or disposal:

(1) class B or class C low-level radioactive waste

A representative from the Nuclear Energy Institute, the primary special interest group for the nuclear industry in this country, said at the hearing that in their survey of nuclear power plants, storage capacity for B and C resins in the 36 states without access to a B/C disposal facility is not an issue for the next 20 - 40 years. Is intentional waste mixing a solution in search of a problem? 20 - 40 years is plenty of time for these states to develop their own disposal solutions.

NEI

"We do not support strict compatibiilty, we will continue to respect that it is **fundamentally up to the states to decide** whether they will accept any waste form. NRC provides the framework, but the NRC is not a recipient of waste, the states are."

The Nuclear Energy Institute also said that were the NRC to institute a new rule on mixing waste to reduce the classification, the states should have flexibility to deny the waste.

Technical Concerns

-Perhaps you can tell the difference between blended and non-blended waste streams

-Segregation/banding of hotter waste creating "hot pockets"

Practical Concerns

-Triple the amount of radioactivity coming from commercial sources if blending approved

-More shipments, more radioactivity means greater risk

Policy Concerns

-A solution in search of a problem; no real problem for 20-40 years

-New NRC policy makes Utah's ban on Class B and C waste storage unenforceable

The Nuclear Energy Institute also said that were the NRC to institute a new rule on mixing waste to reduce the classification, the states should have flexibility to deny the waste.

VIII. Other Division Issues

a. Introduction of Division Director (Board Information Item)
b. Introduction of New Board Members (Board Information Item)
c. Election of Board Chairman and Vice Chairman (Board Action Item)
d. Appointment of Executive Secretary (Board Action Item)
e. Lean Six Sigma Evaluation (Board Information Item)
f. Quarterly Division Activities Report (Board Information Item)

State of Utah
GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF RADIATION CONTROL
Rusty Lundberg
Director

Division of Radiation Control
Activities Report Summary

April, May and June, 2010 Violations assigned a Severity Level I, II or III or where a Monetary Penalty has been imposed.

N/A

2nd Quarter, 2010

X-Ray Program

Current Registrations: 2570, an increase of 4 registrants since last quarter.
Inspections conducted: 189
Inspections Conducted by: Qualified Experts: 39

Radioactive Materials Program

Current Licensees: 198, representing 184 licensees, no net change form 1st Quarter, 2010. Radioactive materials inspections: 22. Three new licenses were issued, 8 licenses were renewed and 19 license amendments were completed.

Low-Level Radioactive Waste Program

Ten inspections were conducted at Energy*Solutions* in the following areas: 4 – materials, equipment and conveyance release, 5 – general radiation safety inspections and 1- ground water inspection. Also the Division received DU analytical results back and report was presented to Board in May.

Uranium Mill Program

Four inspections were conducted at the uranium mills including: 3 – Denison Mines, 0 – Uranium One and 1 – Rio Algom. Denison Mines Cell 4B license amendment, GWDP issued 6/17/2010

Generator Site Access Permit

123 manifests were audited and 479 on-site shipments inspections were preformed.